OIPE
JUL -1-9 2005
PATENT & TRADEMARK OFFICE

FIG. 1

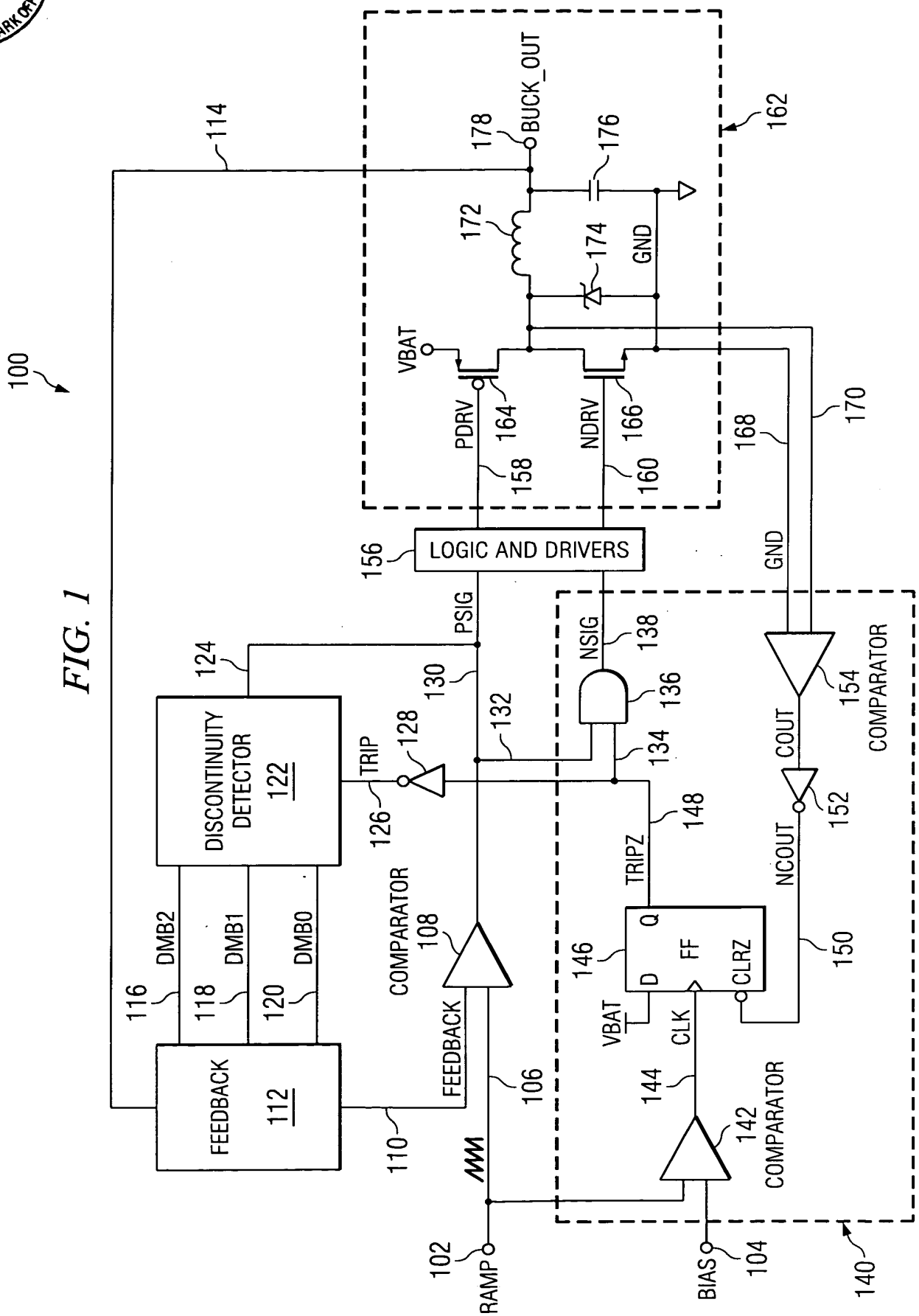
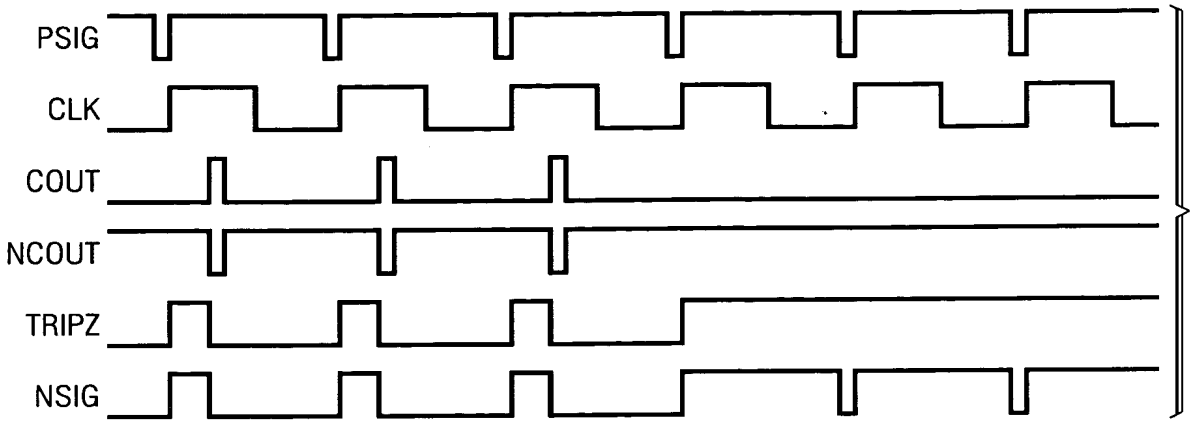


FIG. 2



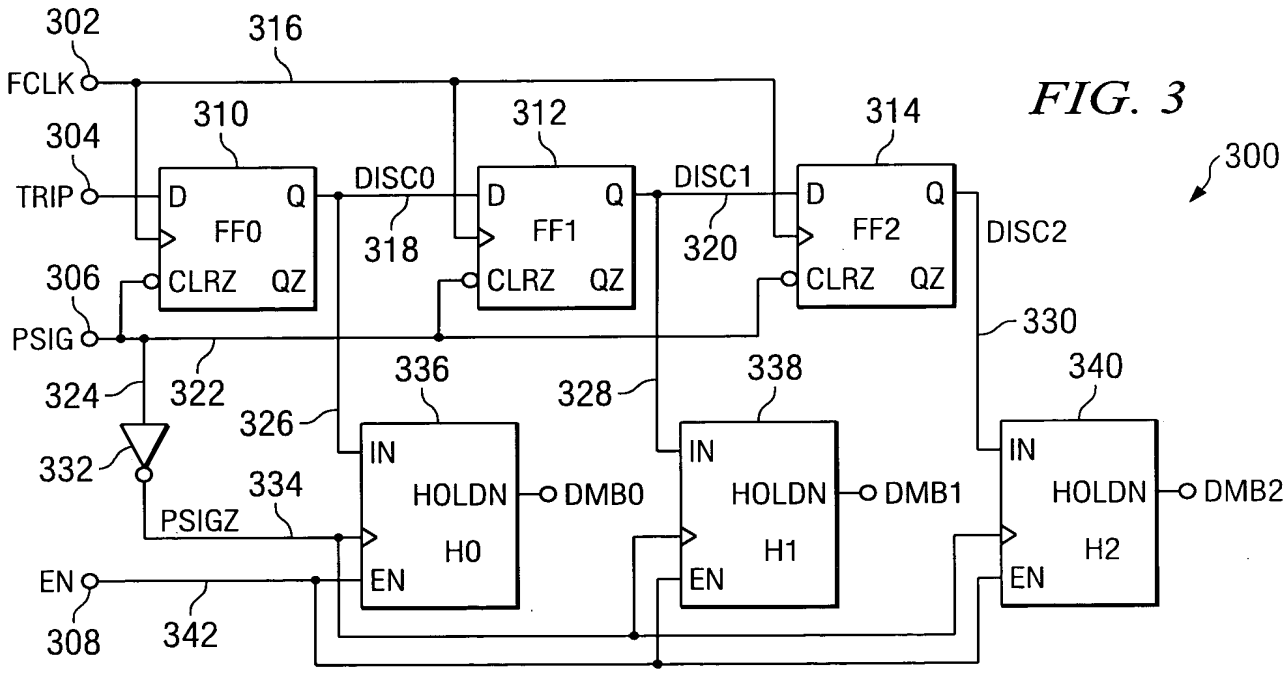


FIG. 3

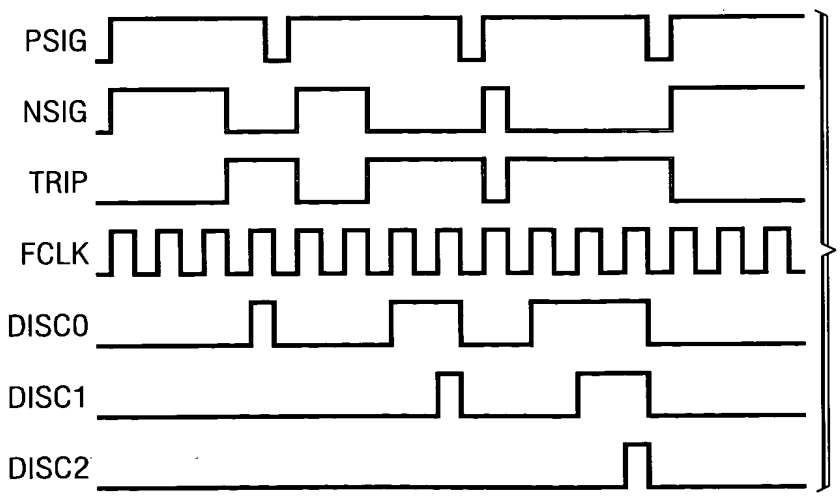


FIG. 4

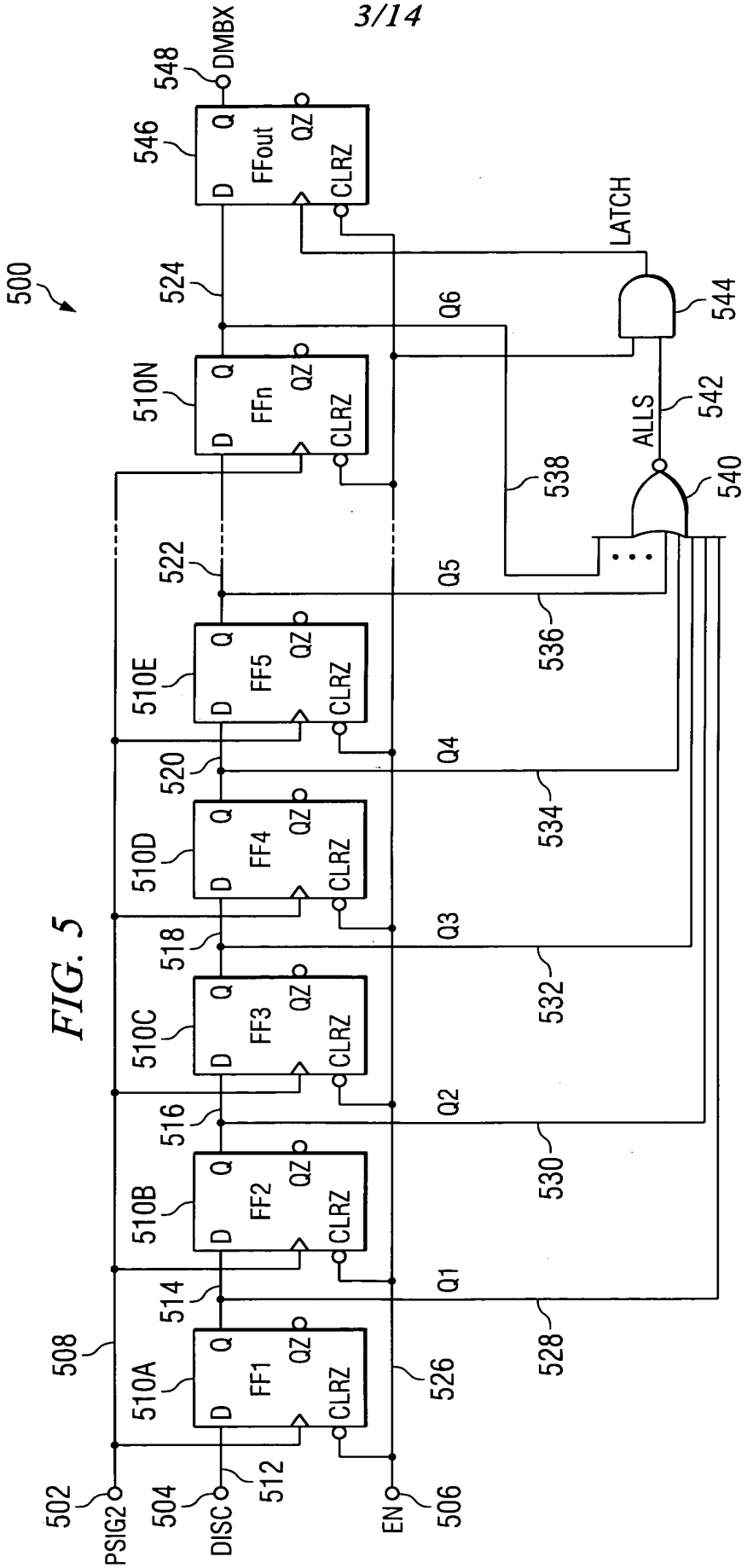

500
502
PSIG2
504
DISC
506
EN
508
510A
FF1
510B
FF2
510C
FF3
510D
FF4
510E
FF5
510N
FFn
512
514
516
518
520
522
524
526
528
530
532
534
536
538
540
542
ALLS
544
LATCH
546
FFout
548
DMBX
Q1
Q2
Q3
Q4
Q5
Q6
D
Q
QZ
CLRZ

FIG. 5

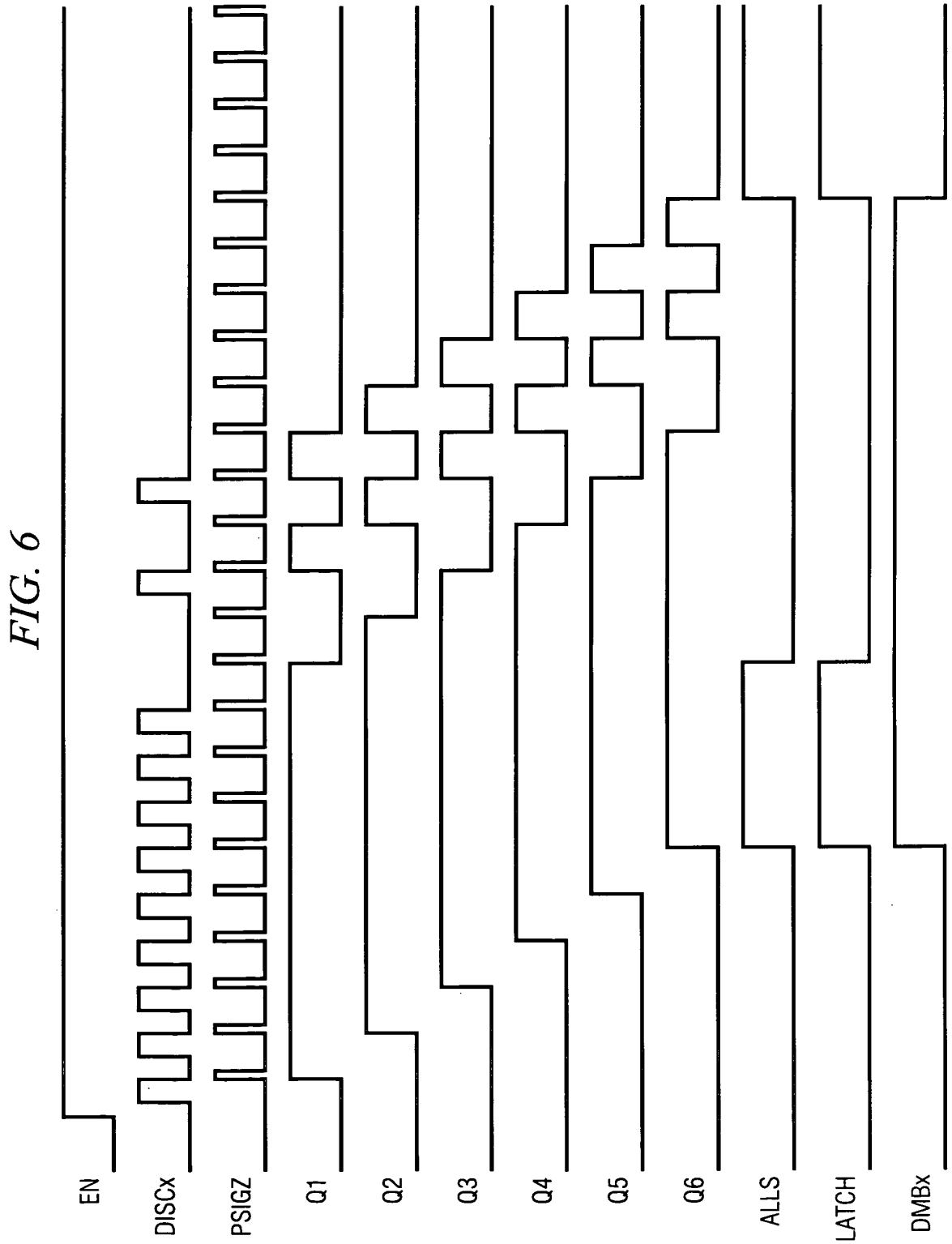


FIG. 6

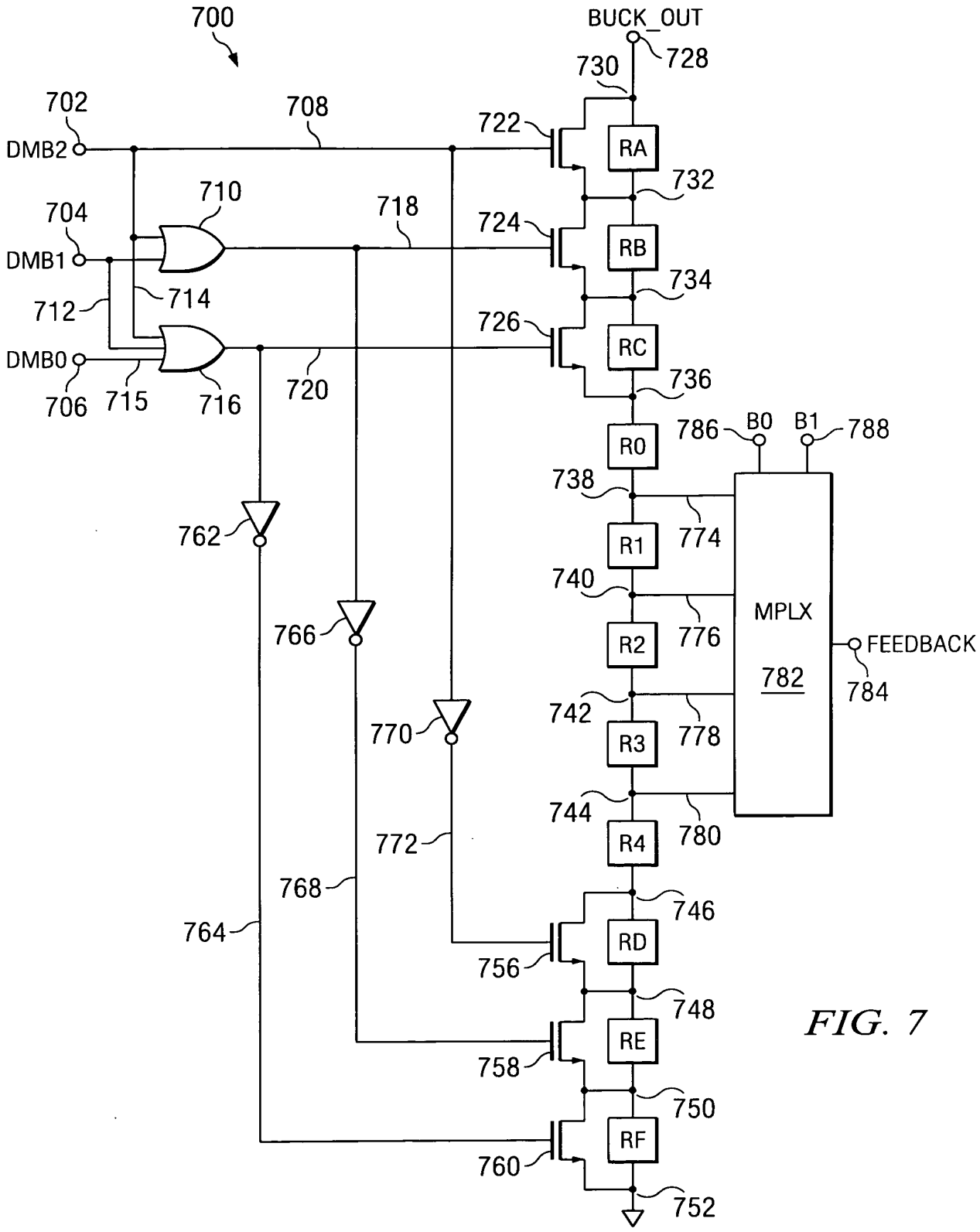

700
BUCK_OUT
728
730
702
708
722
DMB2
RA
732
710
718
704
724
DMB1
RB
734
714
712
726
RC
DMB0
736
706
715
716
720
786
B0
B1
788
R0
738
762
774
R1
740
766
776
MPLX
R2
FEEDBACK
782
784
742
770
778
R3
744
772
780
R4
768
746
764
RD
756
748
RE
758
750
RF
760
752

FIG. 7

FIG. 8A

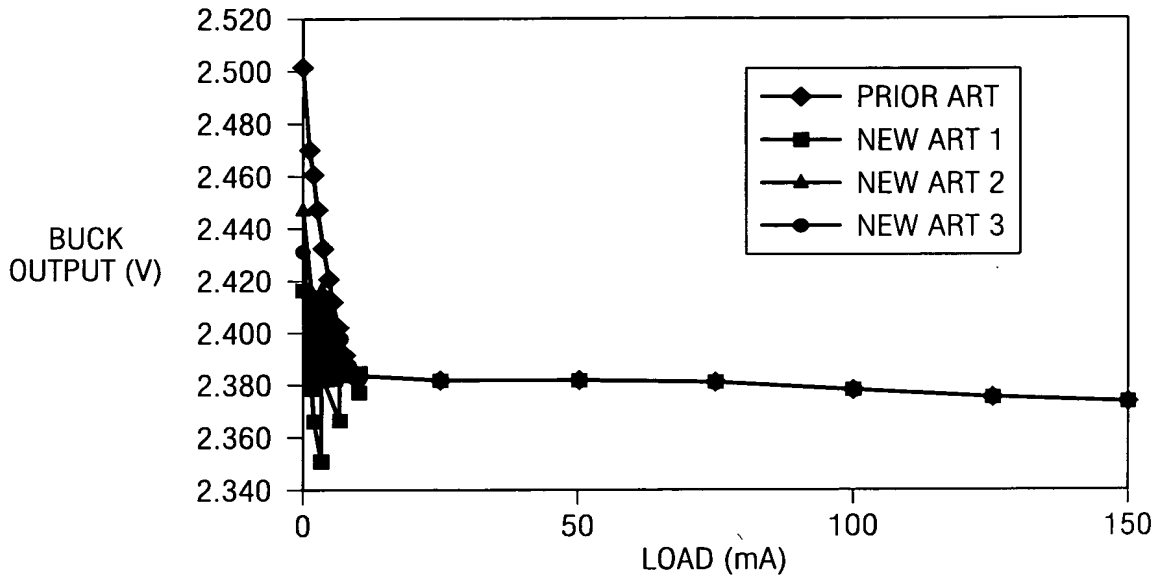
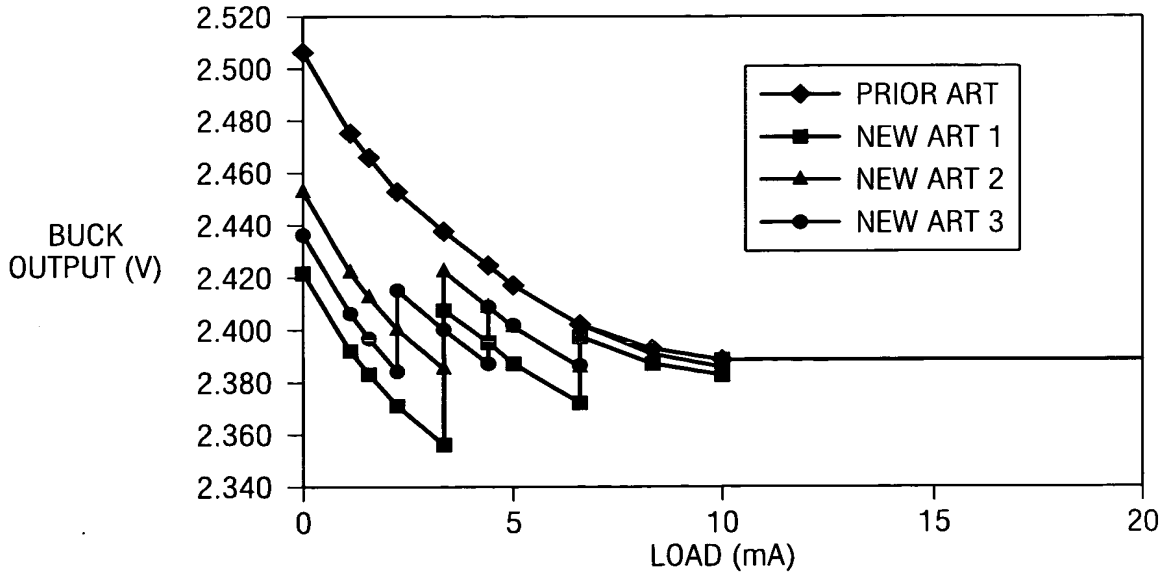

BUCK
OUTPUT (V)
2.520
2.500
2.480
2.460
2.440
2.420
2.400
2.380
2.360
2.340
0
50
100
150
LOAD (mA)
PRIOR ART
NEW ART 1
NEW ART 2
NEW ART 3

FIG. 8B


BUCK
OUTPUT (V)
2.520
2.500
2.480
2.460
2.440
2.420
2.400
2.380
2.360
2.340
0
5
10
15
20
LOAD (mA)
PRIOR ART
NEW ART 1
NEW ART 2
NEW ART 3

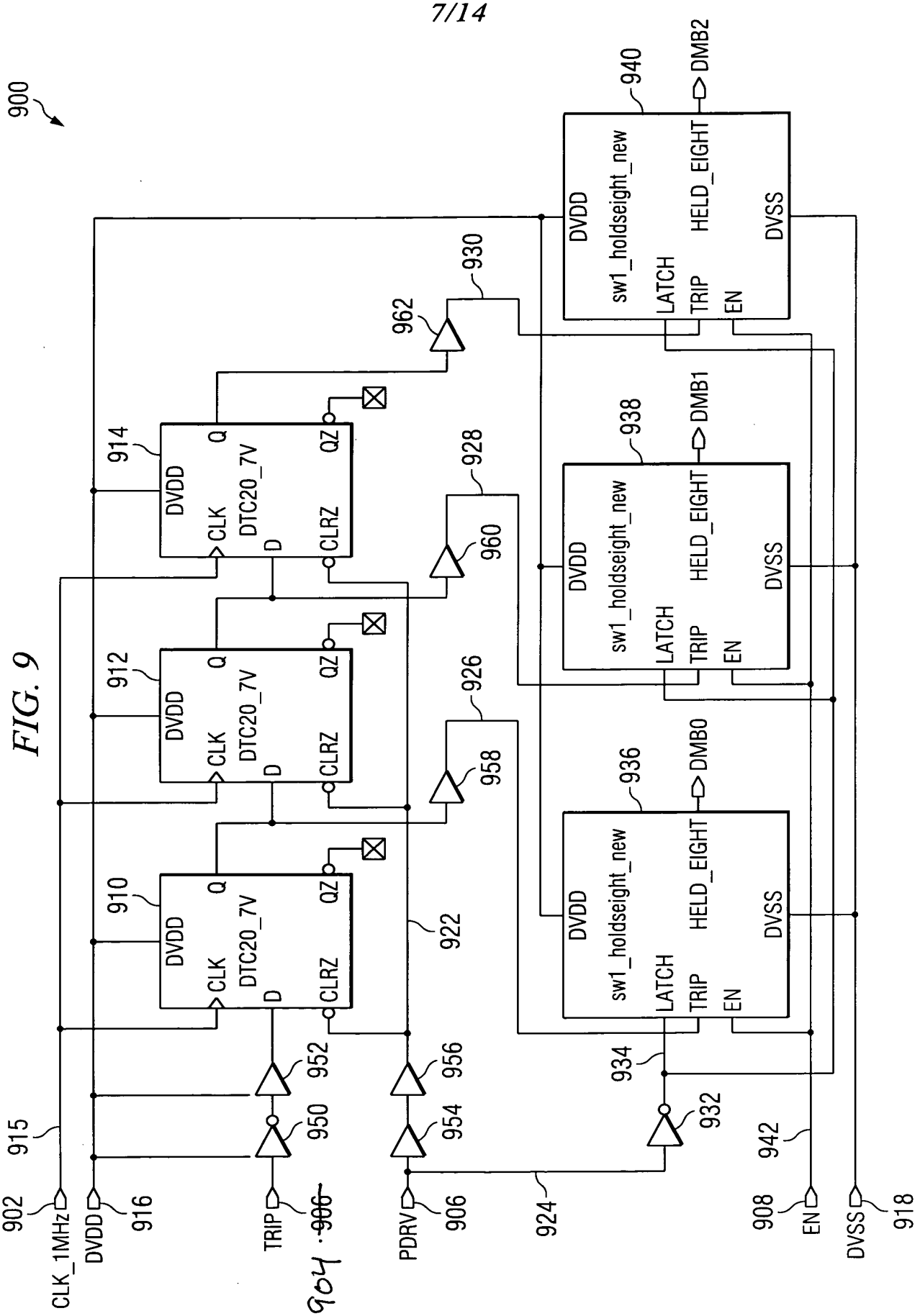

900
902
CLK_1MHz
915
DVDD
916
TRIP
906
PDRV
924
908
EN
942
DVSS
918
910
912
914
DVDD
CLK
DTC20_7V
D
Q
QZ
CLRZ
922
926
928
930
950
952
954
956
958
960
962
932
934
936
938
940
sw1_holdseight_new
LATCH
TRIP
EN
HELD_EIGHT
DMB0
DMB1
DMB2

FIG. 9

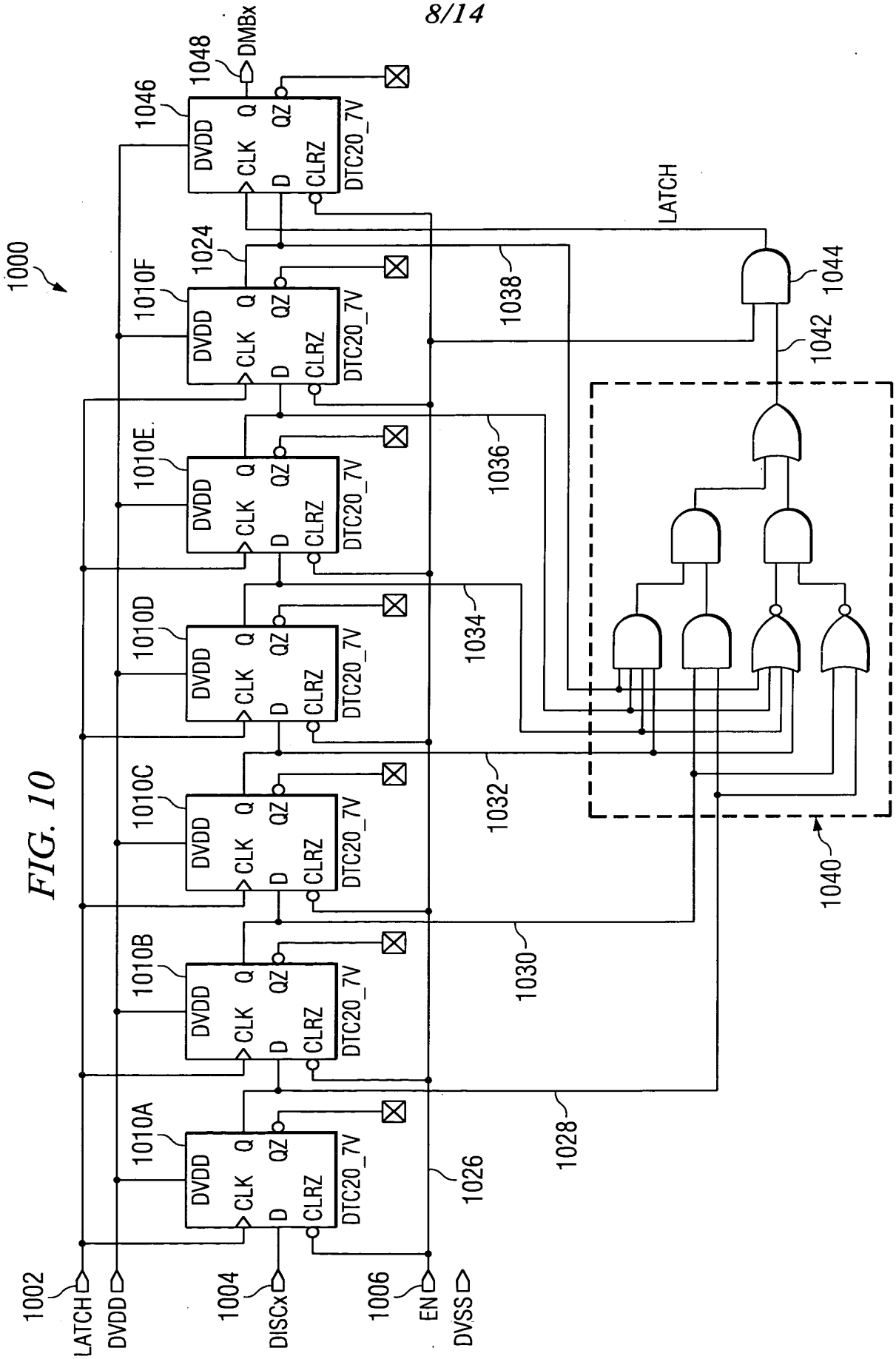

1000
1002
LATCH
DVDD
1004
DISCx
1006
EN
DVSS
1010A
1010B
1010C
1010D
1010E
1010F
1026
1028
1030
1032
1034
1036
1038
1040
1042
1044
1046
1048
DMBx
LATCH
DVDD
CLK
Q
QZ
D
CLRZ
DTC20_7V

FIG. 10

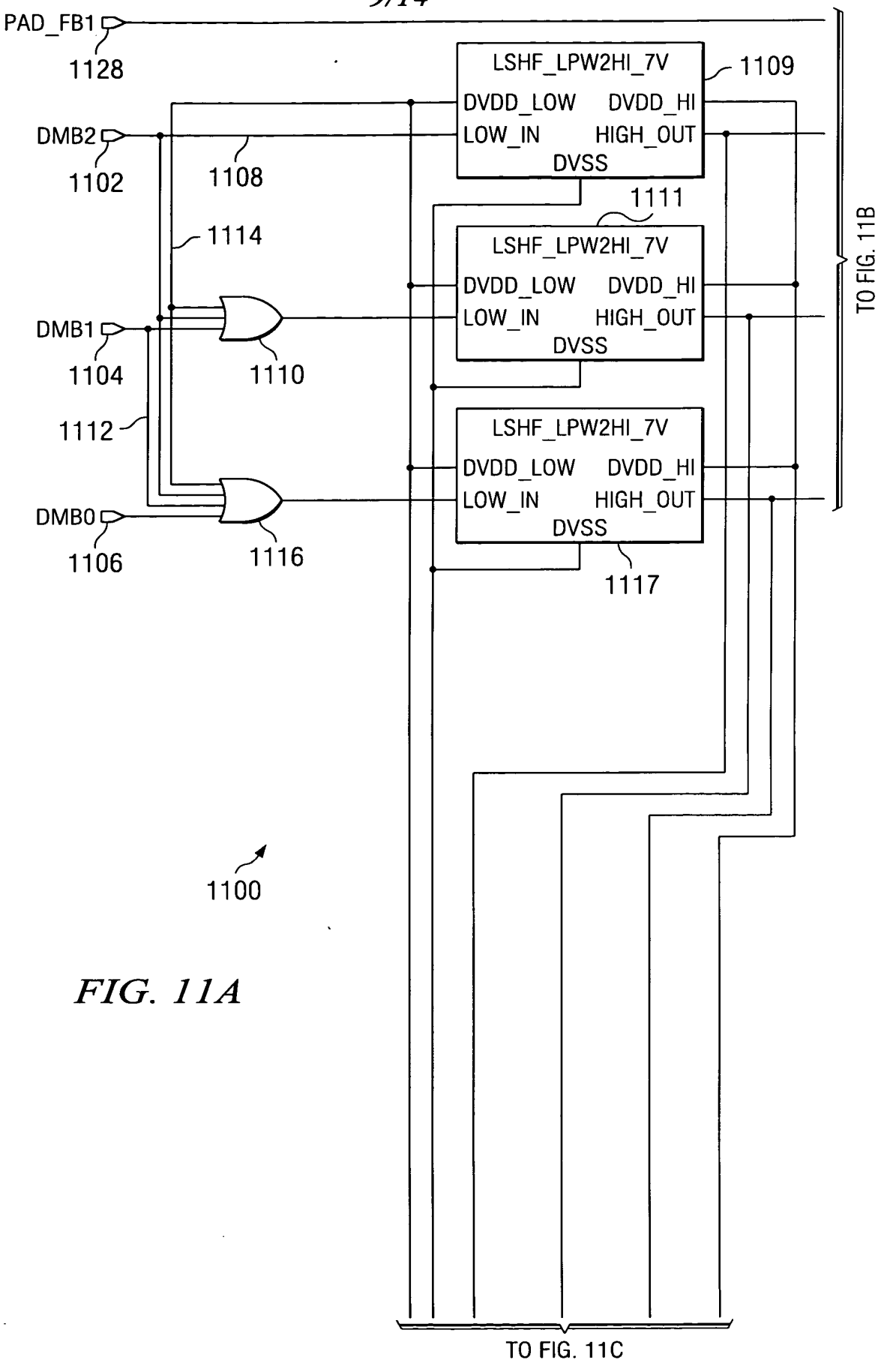

PAD_FB1
1128
DMB2
1102
1108
1114
DMB1
1104
1110
1112
DMB0
1106
1116
LSHF_LPW2HI_7V
DVDD_LOW
DVDD_HI
LOW_IN
HIGH_OUT
DVSS
1109
1111
1117
TO FIG. 11B
1100
TO FIG. 11C

FIG. 11A

FIG. 11B

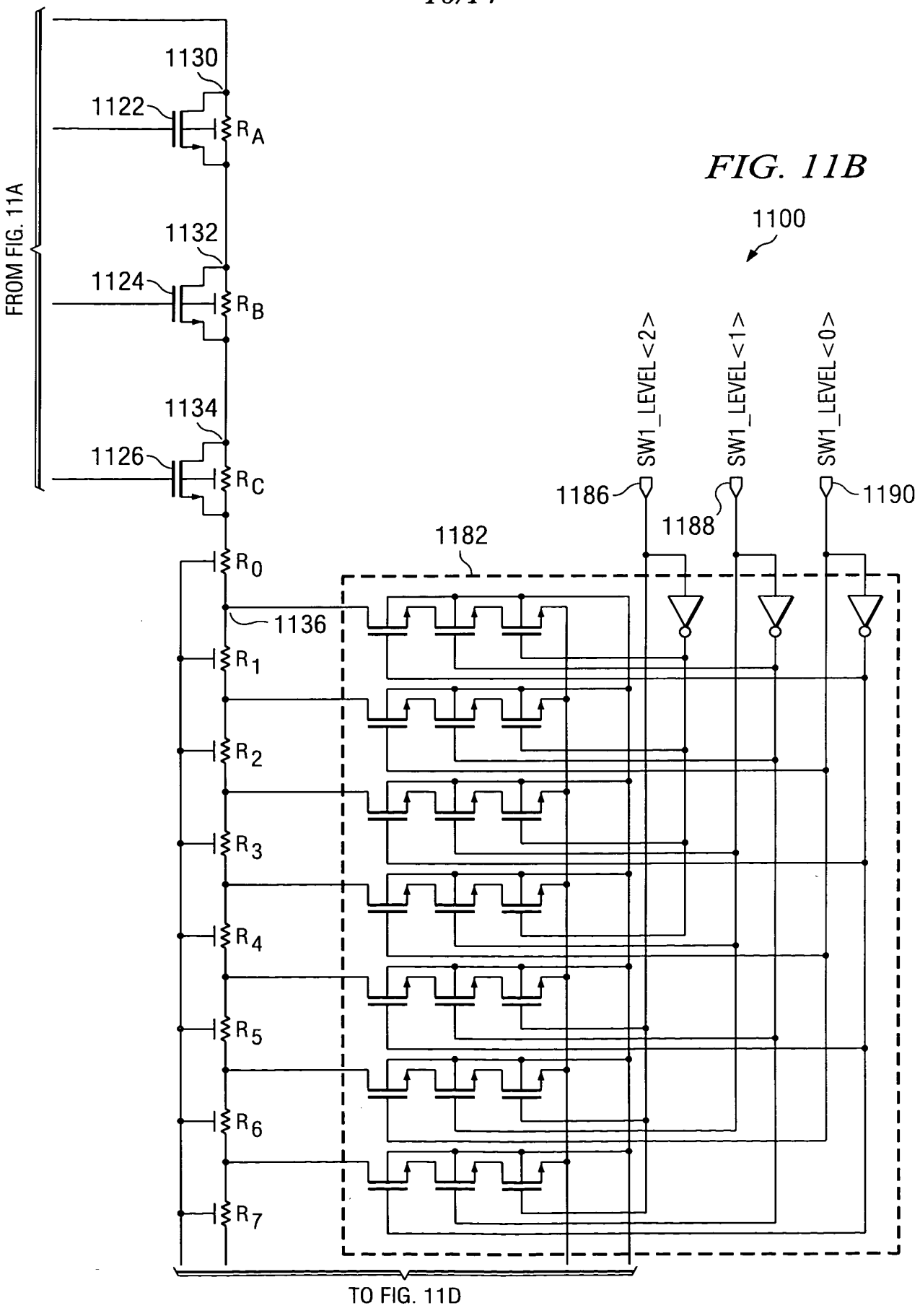

FROM FIG. 11A
1130
1122
R_A
1132
1124
R_B
1134
1126
R_C
R_0
1136
R_1
R_2
R_3
R_4
R_5
R_6
R_7
1100
SW1_LEVEL<2>
SW1_LEVEL<1>
SW1_LEVEL<0>
1186
1188
1190
1182
TO FIG. 11D

FIG. 11C

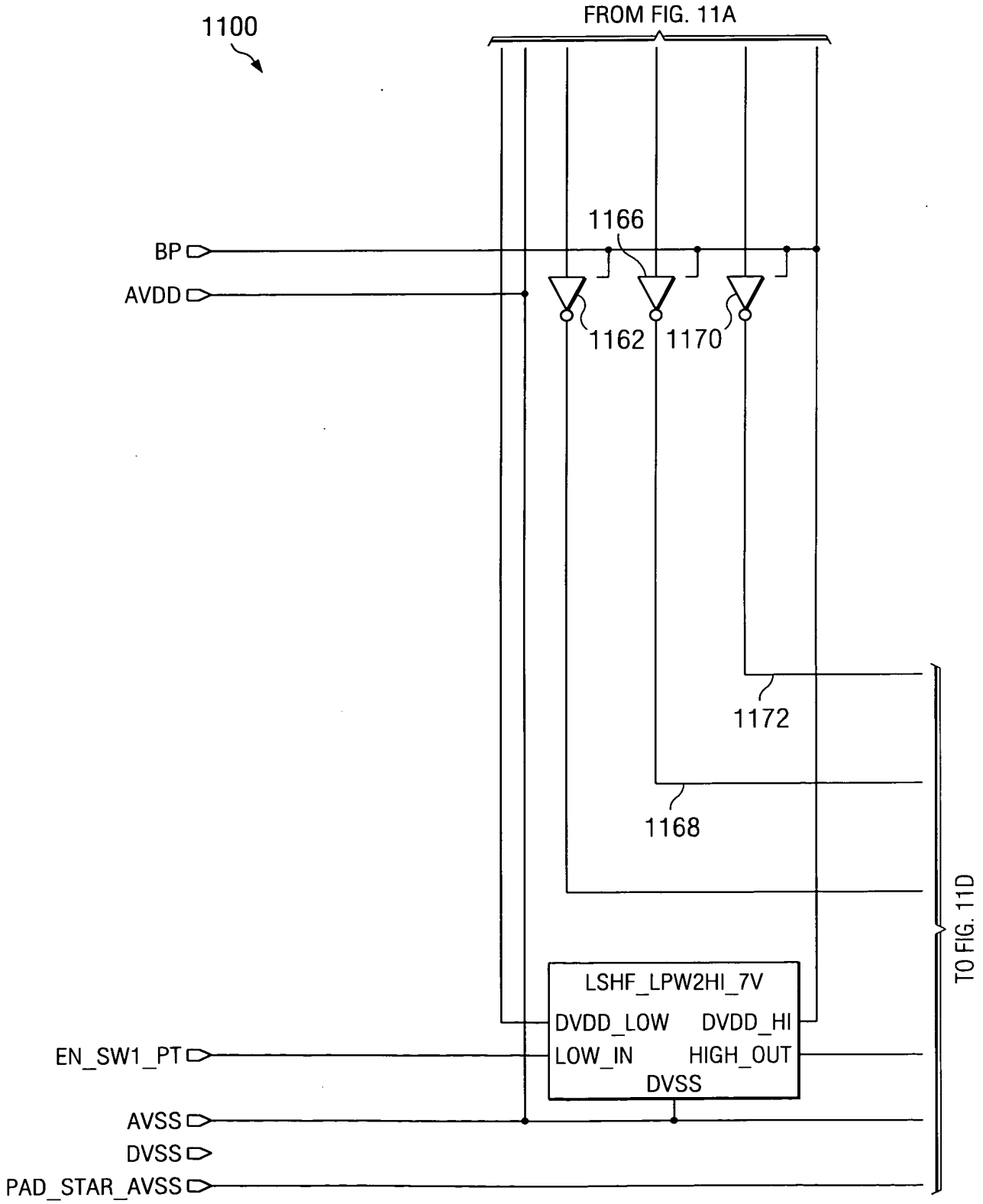
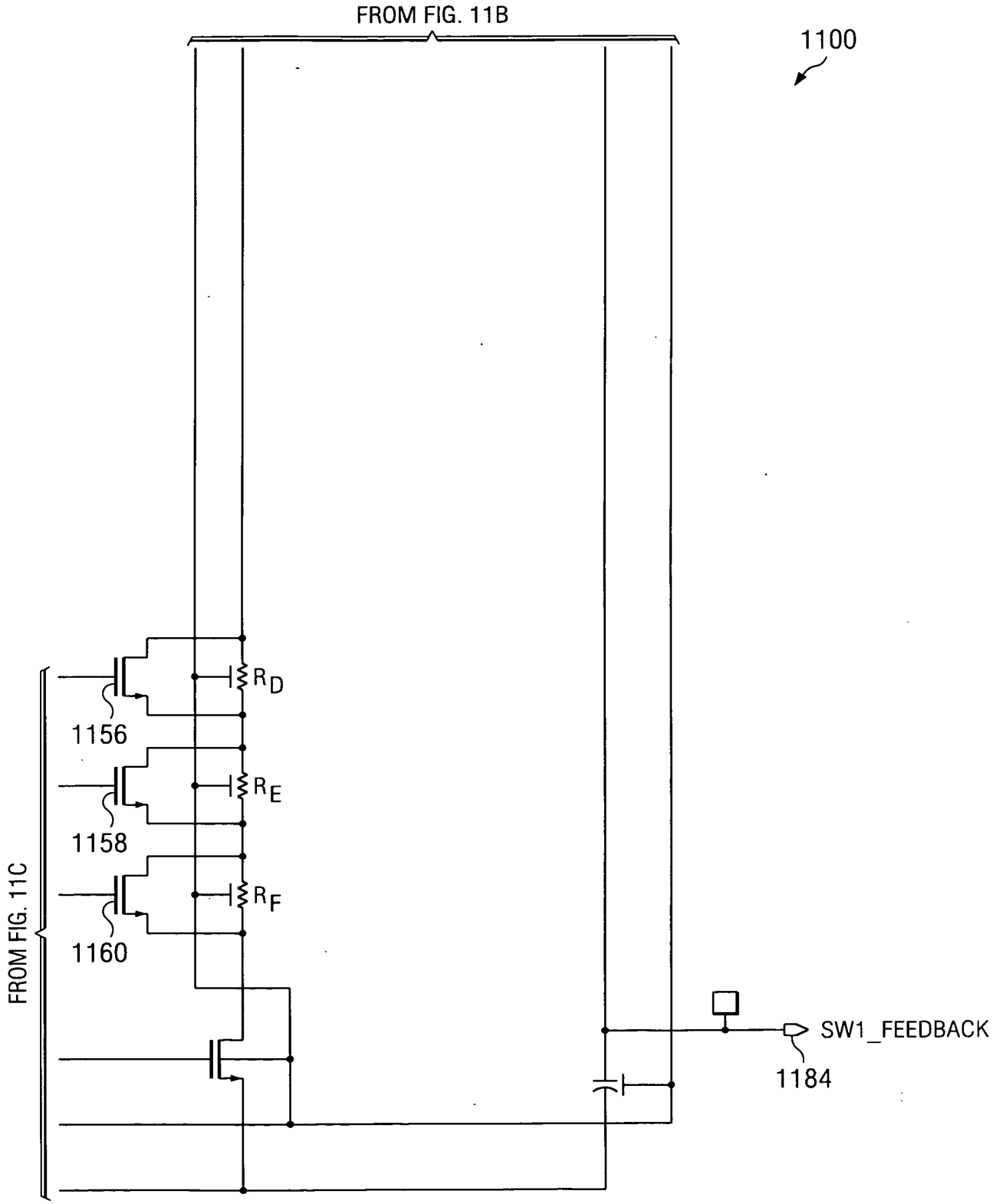

1100
FROM FIG. 11A
1166
BP
AVDD
1162
1170
1172
1168
TO FIG. 11D
LSHF_LPW2HI_7V
DVDD_LOW
DVDD_HI
LOW_IN
HIGH_OUT
DVSS
EN_SW1_PT
AVSS
DVSS
PAD_STAR_AVSS

FIG. 11D


FROM FIG. 11B
1100
R_D
1156
R_E
1158
R_F
1160
FROM FIG. 11C
SW1_FEEDBACK
1184

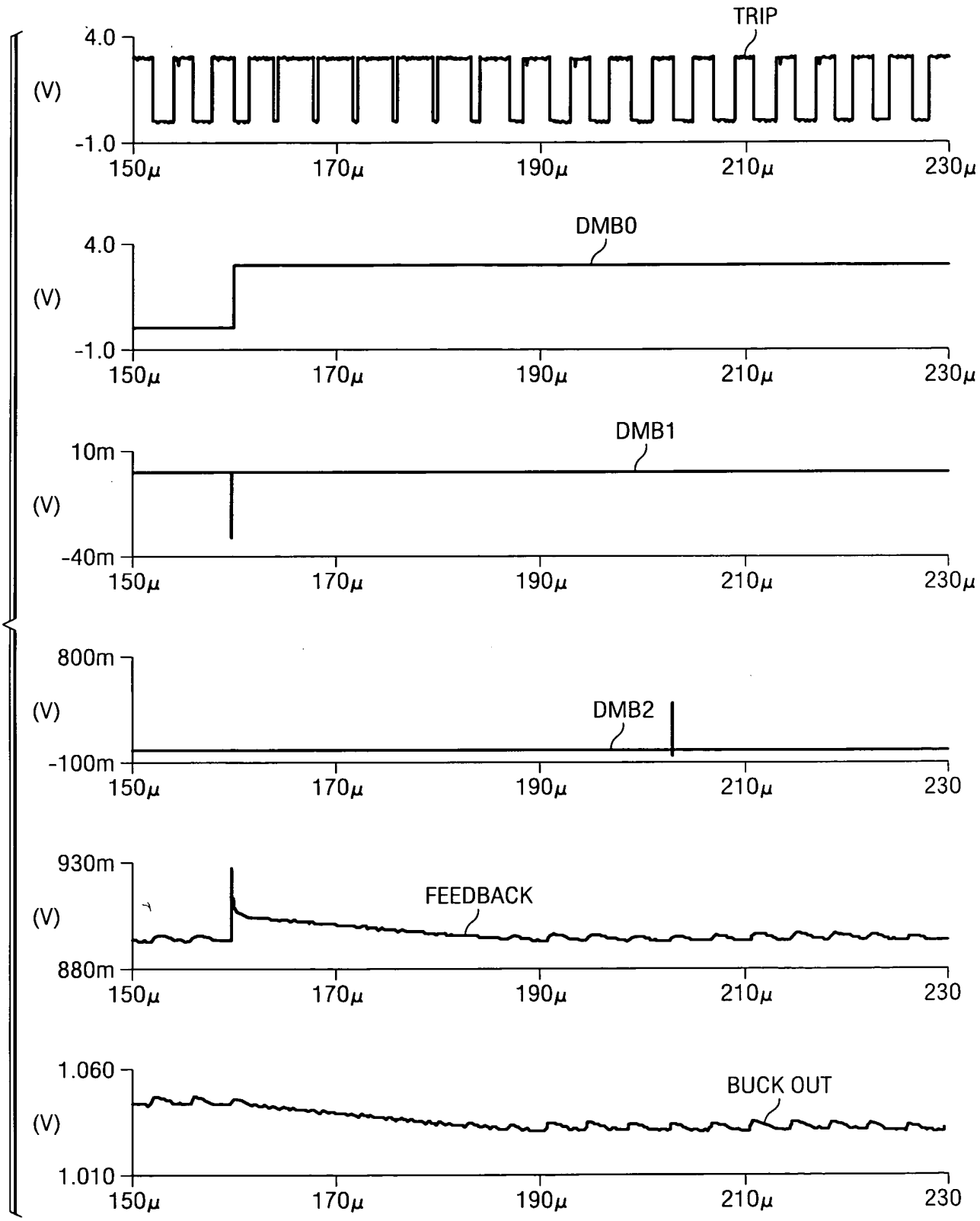

TRIP
4.0
(V)
-1.0
150µ
170µ
190µ
210µ
230µ
DMB0
4.0
(V)
-1.0
150µ
170µ
190µ
210µ
230µ
DMB1
10m
(V)
-40m
150µ
170µ
190µ
210µ
230µ
800m
(V)
DMB2
-100m
150µ
170µ
190µ
210µ
230
930m
(V)
FEEDBACK
880m
150µ
170µ
190µ
210µ
230
1.060
(V)
BUCK OUT
1.010
150µ
170µ
190µ
210µ
230

FIG. 12

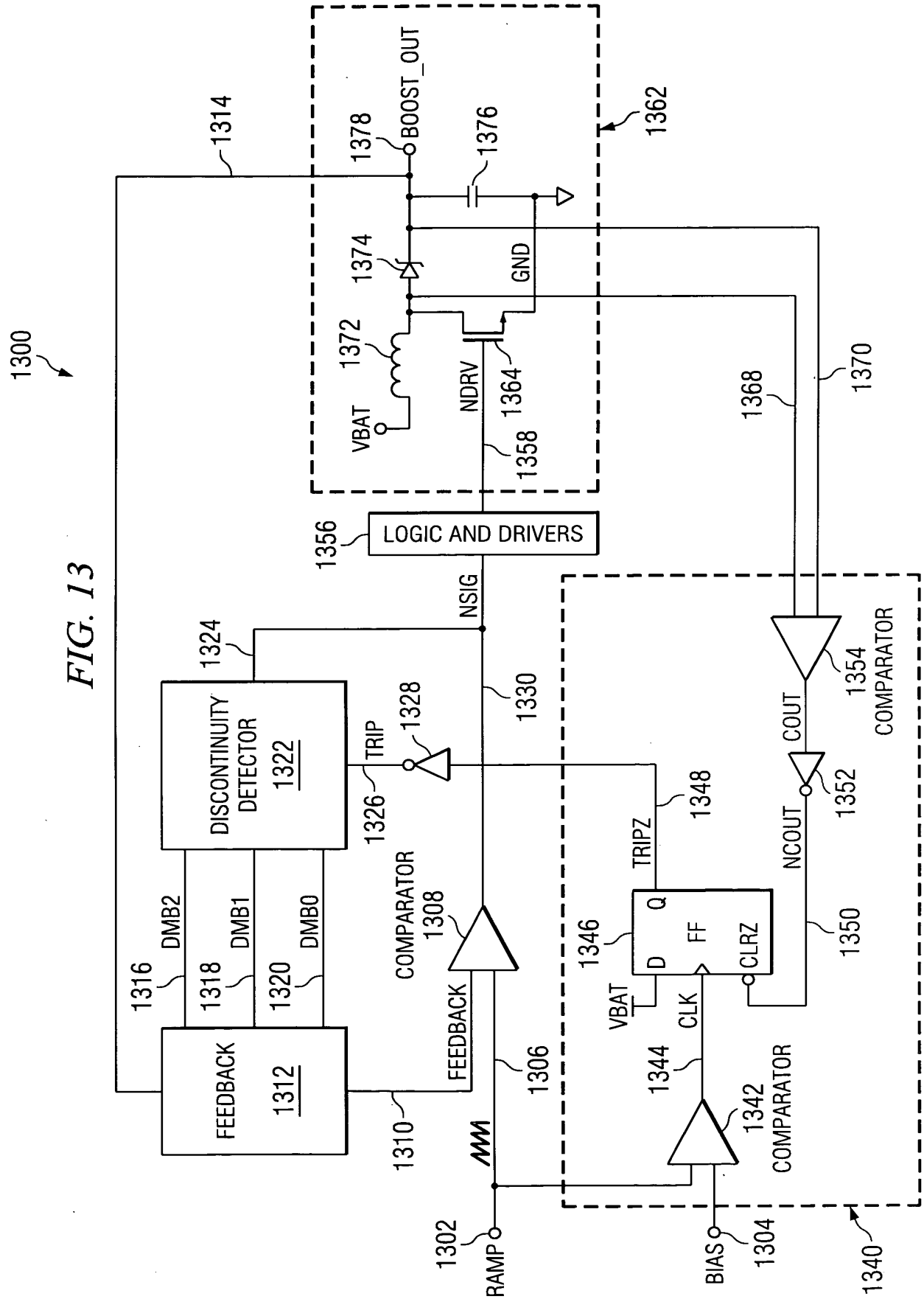

1300
1314
1362
1378
BOOST_OUT
1376
1374
GND
1372
NDRV
1364
VBAT
1358
1368
1370
1356
LOGIC AND DRIVERS
NSIG
1324
1330
DISCONTINUITY DETECTOR 1322
TRIP
1328
1326
1354
COMPARATOR
COUT
1352
NCOUT
1348
TRIPZ
1316
DMB2
1318
DMB1
1320
DMB0
COMPARATOR 1308
1346
D
Q
FF
CLRZ
1350
VBAT
CLK
FEEDBACK
1306
1344
1342
COMPARATOR
FEEDBACK 1312
1310
1302
RAMP
BIAS
1304
1340

FIG. 13